LINCOLN
APPLIED GEOLOGY, INC.
ENVIRONMENTAL CONSULTANTS

JUL 13 1992

July 10, 1992

Ms. Cindy Woods
Agency of Natural Resources
103 South Main Street
Waterbury, Vermont 05676

RE: Webb's Getty, Swanton - Investigation Update and Remediation Proposal

Dear Ms. Woods:

Enclosed are the ground water quality results from June 16, 1992, a summary of the limited subsurface investigation undertaken by Lincoln Applied Geology, Inc. (LAG) on June 30, 1992, and the extent of free product on July 8, 1992. This data indicates that before a single point recovery well can be accurately located on-site, additional hand auger wells need to be placed in areas of concern to determine the areal extent of free product.

As we previously indicated, ground water quality samples were collected from all monitoring wells on-site on June 16, 1992. The laboratory reports are enclosed as **Attachment A**, and the results have been summarized and presented as **Figure 1**: Ground Water Quality Total BTEX Concentrations (ppb). On that date free product was present only in MW-1, and the greatest levels of dissolved BTEX were associated with the area from the underground storage tanks (USTs), the pump island, and to the northwest.

On June 30, 1992, a vibratory hammer was used to install twelve vapor points at the locations shown on **Figure 1**. Eight vapor points (VP-1, 2, 3, 4, 6, 9, 10, and 11) were drilled through the paved asphalt surface, and four vapor points (VP-5, 7, 8, and 12) were drilled into the grassy unpaved surface on-site. A 10.2 eV HNU photoionization detector (PID) was used to screen soil vapors for the presence of gasoline at varying depths within each vapor point, up to a maximum of 6 feet beneath surface grade.

Results of the soil vapor survey are summarized and presented on **Figure 2**; Soil Vapor Gasoline Concentrations (ppm). The estimated soil vapor concentrations are shown by the elliptical isopleths and are determined by the greatest concentrations detected in each soil vapor point during the survey. This does not include vapor levels in the monitoring wells or the basement sump. As shown by the soil vapor data, the greatest gasoline vapor levels exist in the area of the USTs, the pump island, and toward the northwest. The paved asphalt surface effectively prevents the soil vapors from migrating vertically and escaping to the atmosphere.

Two hand augered wells (AH-1 and AH-2) were placed to the northwest and north of the USTs and pump island, respectively, to better define the subsurface stratigraphy. The locations of these wells are shown on **Figure 2.** Surficial geologic deposits encountered in AH-1 consisted of fine sand and silt to a depth of 5.8 feet, and very fine sand and silt from 5.8 feet to the bottom of the boring at 10.5 feet. HNU PID levels from the soils were elevated, ranging from 5.2 parts per million (ppm) to 78 ppm.

AH-2 contained very fine sand and silt to a depth of 6.2 feet, fine sand and silt from 6.2 feet to 7.0 feet, medium sand with some fine sand from 7.0 feet to 9.3 feet, and fine sand with some medium sand from 9.3 feet to the bottom of the boring at 10.5 feet. HNU PID levels from the soils ranged from 35 ppm to SL (saturated lamp). In each boring a 2" diameter PVC monitoring well was installed that was constructed of 5 feet of solid riser pipe above 5 feet of 0.020" slotted screen. The ground water surface was present about 8 feet beneath the surface.

In order to help determine the proper size pump to maintain ground water depression in a recovery well, three pump tests were performed with a Redi-Flo submersible pump. Pump test data from wells MW-8, MW-4, and MW-7 indicate that the recharge rate is less than 1 gallon per minute (GPM). However, it is possible that in coarser sedimentary units present on-site the flow rate may exceed 1 GPM, but is probably less than 5 GPM over a prolonged pumping period.

On July 8, 1992, a ground water and HNU PID monitoring survey conducted by LAG detected free gasoline product in MW-1 (3.28 feet), MW-2 (0.05 feet), and AH-2 (1.75 feet). The presence of free product in MW-1 and AH-2, and absence of it in MW-6 suggests that a preferred avenue of gasoline migration exists in the subsurface between MW-1 and AH-2, but not in MW-6.

S.B. Collins, Inc. (SBC) has continued to monitor water levels and free product thicknesses, and pump all free product from wells on a twice daily schedule since June 23rd. During that time a total of 21.4 gallons of gasoline has been recovered. SBC will continue these efforts until a free product recovery system is installed and made operational on-site. **Table 1** provides a summary of product recovered.

Since the areal extent of free product at the Webb's Getty site is currently not sufficiently identified, LAG will install a minimum of three additional hand auger monitoring wells before the proposed recovery well can be accurately located. The three wells will be located in front of the garage northwest of the USTs, southwest of MW-6 near the Webb's Restaurant

building, and northwest of AH-2. These auger holes and monitor wells will aid with the identification of a probable 'preferred migration path' between MW-1 and AH-2 and assist in properly locating the recovery well. The exact location of the wells is dependent upon site conditions and the permission of Mr. Roland Webb.

The schematic free and dissolved product remediation system proposed by LAG for the Webb's Getty site is shown on **Figure 3**. The exact location of the treatment shed, recharge gallery, trenching, and recovery well has not been fully delineated, however the basic remediation equipment required is known. The recovery well will be used for ground water depression and free product recovery. A 5 GPM submersible pump will depress the ground water surface and discharge pumped ground water through underground piping to a treatment shed. In the shed the water will be treated in two granular activated carbon (GAC) canisters before being discharged through underground piping to an on-site recharge gallery. A SpillBuster Senior system will control the ground water depression and pump free gasoline product to a 55 gallon product recovery drum also located in the treatment shed.

In order to reduce impacts to the Webb's Restaurant business, the location of components of the remediation system and their installation schedule will be coordinated closely with Mr. Roland Webb and his family.

We will keep you appraised of the site status and will submit a finalized remedial work plan as soon as practical. In the interim, SBC will continue with daily monitoring and manual free product recovery. If you have any questions or concerns with regard to this matter, please do not hesitate to call me at 802-453-4384.

Sincerely,

William D. Norland

William D. Norland
Hydrogeologist

WDN/smd

Enclosures

cc: Carl Ruprecht

Lincoln Applied Geology, Inc.
Environmental Consultants
RD # 1 Box 710 • Bristol, Vermont 05443 • (802) 453-4384 • FAX (802) 453-5399

Table 1

Project: Webb's Getty Job # 9116

Location: Swanton, Vermont Sheet # 1 of 1

Free Product Recovered (gallons)

	6-8-92	6-9-92	6-11-92	6-16-92 *	6-17-92 *	6-18-92 *	6-19-92 *	6-22-92 *	6-23-92 *	6-23-92 *
Interval Product Recovered	0.56	0.55	0.68	0.75	0.25	0.50	0.50	0.80	0.77	0.26
Total Product Recovered	0.56	1.11	1.79	2.54	2.79	3.29	3.79	4.56	5.36	5.62

	6-25-92 *	6-26-92 *	6-27-92 *	6-28-92 *	6-29-92 *	6-30-92 *	7-1-92 *	7-2-92 *	7-3-92 *	7-5-92 *
Interval Product Recovered	4.08	1.19	0.40	0.81	0.81	0.81	1.62	0.81	2.83	0.81
Total Product Recovered	9.70	10.89	11.29	12.10	12.91	13.72	15.74	16.15	18.98	19.79

	7-6-92 *	7-7-92 *								
Interval Product Recovered	0.81	0.81								
Total Product Recovered	20.60	21.41								

Interval Product Recovered										
Total Product Recovered										

Notes: * - Data Collected by S.B. Collins

ATTACHMENT A

Ground Water Quality Results

ENDYNE, INC.

Laboratory Services

32 James Brown Drive
Williston, Vermont 05495
(802) 879-4333
FAX 879-7103

LABORATORY REPORT

GC METHOD -- BTEX (BENZENE, TOLUENE, ETHYLBENZENE, XYLENES)

CLIENT: Lincoln Applied Geology
PROJECT NAME: Webb's
REPORT DATE: June 26, 1992
SAMPLER: James
DATE SAMPLED: June 16, 1992
DATE RECEIVED: June 16, 1992

PROJECT CODE: LAWA1278
ANALYSIS DATE: June 25, 1992
STATION: MW-2
REF.#: 32,084
TIME SAMPLED: 12:10

Parameter	Detection Limit (ug/L)[1]	Concentration (ug/L)
Benzene	200	2,240.
Toluene	200	7,590.
Ethylbenzene	200	3,630.
Xylenes	200	9,660.
MTBE	200	ND[1]

NUMBER OF UNIDENTIFIED PEAKS FOUND: 12

NOTES:

1 Detection limit raised due to high levels of contaminants. Sample run at 0.5% dilution.
2 Compound not detected in analysis

Reviewed by _____

ENDYNE, INC.

Laboratory Services

32 James Brown Drive
Williston, Vermont 05495
(802) 879-4333
FAX 879-7103

LABORATORY REPORT

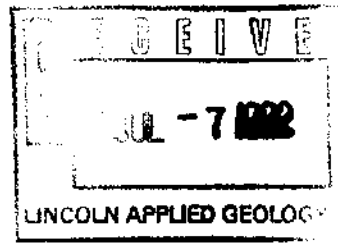
GC METHOD -- BTEX (BENZENE, TOLUENE, ETHYLBENZENE, XYLENES)

CLIENT: Lincoln Applied Geology
PROJECT NAME: Webb's
REPORT DATE: June 26, 1992
SAMPLER: James
DATE SAMPLED: June 16, 1992
DATE RECEIVED: June 16, 1992

PROJECT CODE: LAWA1278
ANALYSIS DATE: June 25, 1992
STATION: MW-3
REF.#: 32,083
TIME SAMPLED: 12:05

Parameter	Detection Limit (ug/L)[1]	Concentration (ug/L)
Benzene	100	6,130.
Toluene	100	15,800.
Ethylbenzene	100	3,100.
Xylenes	100	7,960.
MTBE	100	6,420.

NUMBER OF UNIDENTIFIED PEAKS FOUND: 17



NOTES:

1 Detection limit raised due to high levels of contaminants. Sample run at 1% dilution.

Reviewed by _____

ENDYNE, INC.

Laboratory Services

32 James Brown Drive
Williston, Vermont 05495
(802) 879-4333
FAX 879-7103

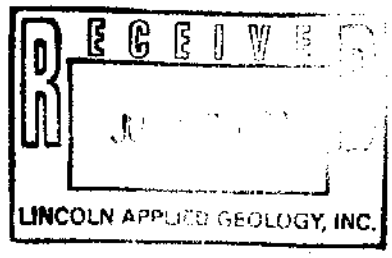
LABORATORY REPORT

GC METHOD -- BTEX (BENZENE, TOLUENE, ETHYLBENZENE, XYLENES)

CLIENT: Lincoln Applied Geology
PROJECT NAME: Webb's
REPORT DATE: June 26, 1992
SAMPLER: James
DATE SAMPLED: June 16, 1992
DATE RECEIVED: June 16, 1992

PROJECT CODE: LAWA1278
ANALYSIS DATE: June 25, 1992
STATION: MW-4
REF.#: 32,078
TIME SAMPLED: 10:58

Parameter	Detection Limit (ug/L)[1]	Concentration (ug/L)
Benzene	2	3.0
Toluene	2	24.7
Ethylbenzene	2	70.8
Xylenes	2	62.6
MTBE	2	ND[2]



NUMBER OF UNIDENTIFIED PEAKS FOUND: >25

NOTES:

1 Detection limit raised due to high levels of contaminants. Sample run at 50% dilution.
2 Compound not detected in analysis

Reviewed by _____

ENDYNE, INC.

Laboratory Services

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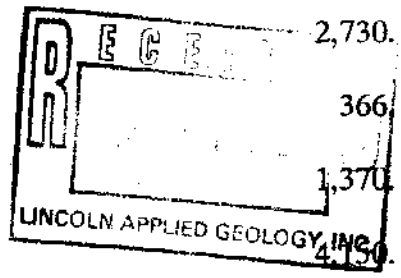
LABORATORY REPORT

GC METHOD -- BTEX (BENZENE, TOLUENE, ETHYLBENZENE, XYLENES)

CLIENT: Lincoln Applied Geology
PROJECT NAME: Webb's
REPORT DATE: June 26, 1992
SAMPLER: James
DATE SAMPLED: June 16, 1992
DATE RECEIVED: June 16, 1992

PROJECT CODE: LAWA1278
ANALYSIS DATE: June 25, 1992
STATION: MW-5
REF.#: 32,079
TIME SAMPLED: 11:32

Parameter	Detection Limit (ug/L)[1]	Concentration (ug/L)
Benzene	100	1,970.
Toluene	100	2,730.
Ethylbenzene	100	366.
Xylenes	100	1,370.
MTBE	100	4,150.



NUMBER OF UNIDENTIFIED PEAKS FOUND: 6

NOTES:

1 Detection limit raised due to high levels of contaminants. Sample run at 1% dilution.

Reviewed by _____

ENDYNE, INC.

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Williston, Vermont 05495
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LABORATORY REPORT

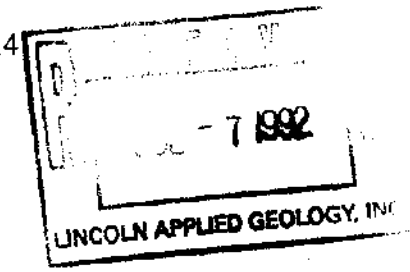
GC METHOD -- BTEX (BENZENE, TOLUENE, ETHYLBENZENE, XYLENES)

CLIENT: Lincoln Applied Geology
PROJECT NAME: Webb's
REPORT DATE: June 26, 1992
SAMPLER: James
DATE SAMPLED: June 16, 1992
DATE RECEIVED: June 16, 1992

PROJECT CODE: LAWA1278
ANALYSIS DATE: June 25, 1992
STATION: MW-6
REF.#: 32,082
TIME SAMPLED: 11:33

Parameter	Detection Limit (ug/L)[1]	Concentration (ug/L)
Benzene	100	23,200.
Toluene	100	31,000.
Ethylbenzene	100	4,000.
Xylenes	100	10,700.
MTBE	100	52,300.

NUMBER OF UNIDENTIFIED PEAKS FOUND: 14



NOTES:

1 Detection limit raised due to high levels of contaminants. Sample run at 1% dilution.
2 Compound not det

Reviewed by _____

ENDYNE, INC.

Laboratory Services

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Williston, Vermont 05495
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LABORATORY REPORT

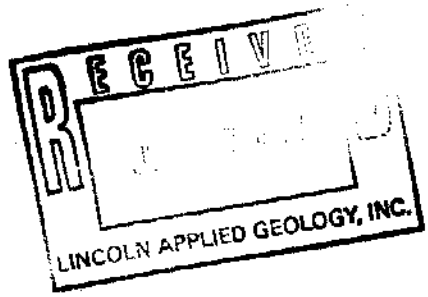
GC METHOD -- BTEX (BENZENE, TOLUENE, ETHYLBENZENE, XYLENES)

CLIENT: Lincoln Applied Geology
PROJECT NAME: Webb's
REPORT DATE: June 26, 1992
SAMPLER: James
DATE SAMPLED: June 16, 1992
DATE RECEIVED: June 16, 1992

PROJECT CODE: LAWA1278
ANALYSIS DATE: June 25, 1992
STATION: MW-7
REF.#: 32,076
TIME SAMPLED: 10:43

Parameter	Detection Limit (ug/L)[1]	Concentration (ug/L)
Benzene	1	11.1
Toluene	1	4.0
Ethylbenzene	1	1.6
Xylenes	1	5.8
MTBE	1	6.1

NUMBER OF UNIDENTIFIED PEAKS FOUND: 7



Reviewed by _____

ENDYNE, INC.

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Williston, Vermont 05495
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LABORATORY REPORT

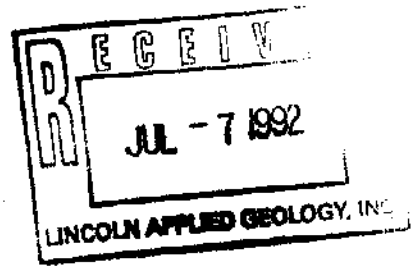
GC METHOD -- BTEX (BENZENE, TOLUENE, ETHYLBENZENE, XYLENES)

CLIENT: Lincoln Applied Geology
PROJECT NAME: Webb's
REPORT DATE: June 26, 1992
SAMPLER: James
DATE SAMPLED: June 16, 1992
DATE RECEIVED: June 16, 1992

PROJECT CODE: LAWA1278
ANALYSIS DATE: June 25, 1992
STATION: MW-8
REF.#: 32,077
TIME SAMPLED: 10:50

Parameter	Detection Limit (ug/L)	Concentration (ug/L)
Benzene	1	TBQ[1]
Toluene	1	2.7
Ethylbenzene	1	1.6
Xylenes	1	2.7
MTBE	1	1.0

NUMBER OF UNIDENTIFIED PEAKS FOUND: 10



NOTES:

1 Trace below quantitation limit

Reviewed by _____

ENDYNE, INC.

Laboratory Services

32 James Brown Drive
Williston, Vermont 05495
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LABORATORY REPORT

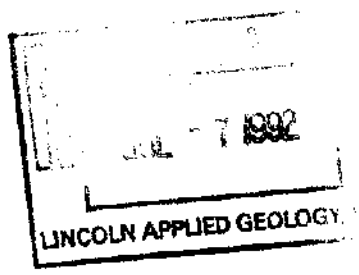
GC METHOD -- BTEX (BENZENE, TOLUENE, ETHYLBENZENE, XYLENES)

CLIENT: Lincoln Applied Geology
PROJECT NAME: Webb's
REPORT DATE: June 26, 1992
SAMPLER: James
DATE SAMPLED: June 16, 1992
DATE RECEIVED: June 16, 1992

PROJECT CODE: LAWA1278
ANALYSIS DATE: June 25, 1992
STATION: MW-9
REF.#: 32,085
TIME SAMPLED: 12:15

Parameter	Detection Limit (ug/L)[1]	Concentration (ug/L)
Benzene	2	62.8
Toluene	2	66.9
Ethylbenzene	2	7.7
Xylenes	2	25.3
MTBE	2	40.3

NUMBER OF UNIDENTIFIED PEAKS FOUND: 15



NOTES:

1 Detection limit raised due to high levels of contaminants. Sample run at 50% dilution.

Reviewed by _____

ENDYNE, INC.

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LABORATORY REPORT

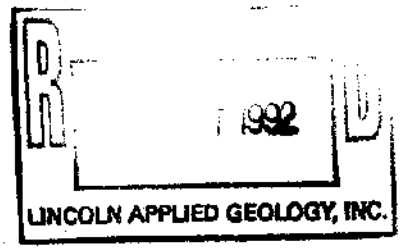
GC METHOD -- BTEX (BENZENE, TOLUENE, ETHYLBENZENE, XYLENES)

CLIENT: Lincoln Applied Geology
PROJECT NAME: Webb's
REPORT DATE: June 26, 1992
SAMPLER: James
DATE SAMPLED: June 16, 1992
DATE RECEIVED: June 16, 1992

PROJECT CODE: LAWA1278
ANALYSIS DATE: June 25, 1992
STATION: MW-10
REF.#: 32,081
TIME SAMPLED: 11:51

Parameter	Detection Limit (ug/L)[1]	Concentration (ug/L)
Benzene	2	178.
Toluene	2	22.8
Ethylbenzene	2	3.2
Xylenes	2	8.24
MTBE	2	131.

NUMBER OF UNIDENTIFIED PEAKS FOUND: 9



NOTES:

1 Detection limit raised due to high levels of contaminants. Sample run at 50% dilution.

Reviewed by _____

ENDYNE, INC.

Laboratory Services

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LABORATORY REPORT

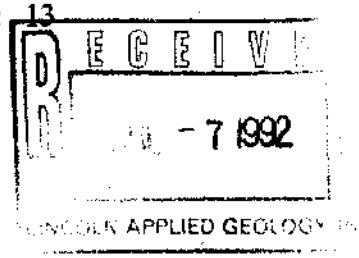
GC METHOD -- BTEX (BENZENE, TOLUENE, ETHYLBENZENE, XYLENES)

CLIENT: Lincoln Applied Geology
PROJECT NAME: Webb's
REPORT DATE: June 26, 1992
SAMPLER: James
DATE SAMPLED: June 16, 1992
DATE RECEIVED: June 16, 1992

PROJECT CODE: LAWA1278
ANALYSIS DATE: June 25, 1992
STATION: MW-11
REF.#: 32,080
TIME SAMPLED: 11:40

Parameter	Detection Limit (ug/L)	Concentration (ug/L)
Benzene	1	TBQ[1]
Toluene	1	5.6
Ethylbenzene	1	8.0
Xylenes	1	8.9
MTBE	1	TBQ

NUMBER OF UNIDENTIFIED PEAKS FOUND: 13



NOTES:

1 Trace below quantitation limit

Reviewed by _____

ENDYNE, INC.

Laboratory Services

32 James Brown Drive
Williston, Vermont 05495
(802) 879-4333
FAX 879-7103

LABORATORY REPORT

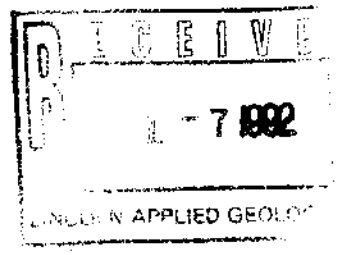
GC METHOD -- BTEX (BENZENE, TOLUENE, ETHYLBENZENE, XYLENES)

CLIENT: Lincoln Applied Geology
PROJECT NAME: Webb's
REPORT DATE: June 26, 1992
SAMPLER: James
DATE SAMPLED: June 16, 1992
DATE RECEIVED: June 16, 1992

PROJECT CODE: LAWA1278
ANALYSIS DATE: June 25, 1992
STATION: Trip
REF.#: 32,086
TIME SAMPLED: 12:16

Parameter	Detection Limit (ug/L)	Concentration (ug/L)
Benzene	1	ND[2]
Toluene	1	ND
Ethylbenzene	1	ND
Xylenes	1	ND
MTBE	1	2.0

NUMBER OF UNIDENTIFIED PEAKS FOUND: 0



NOTES:

1 Compound not detected in analysis

Reviewed by _____

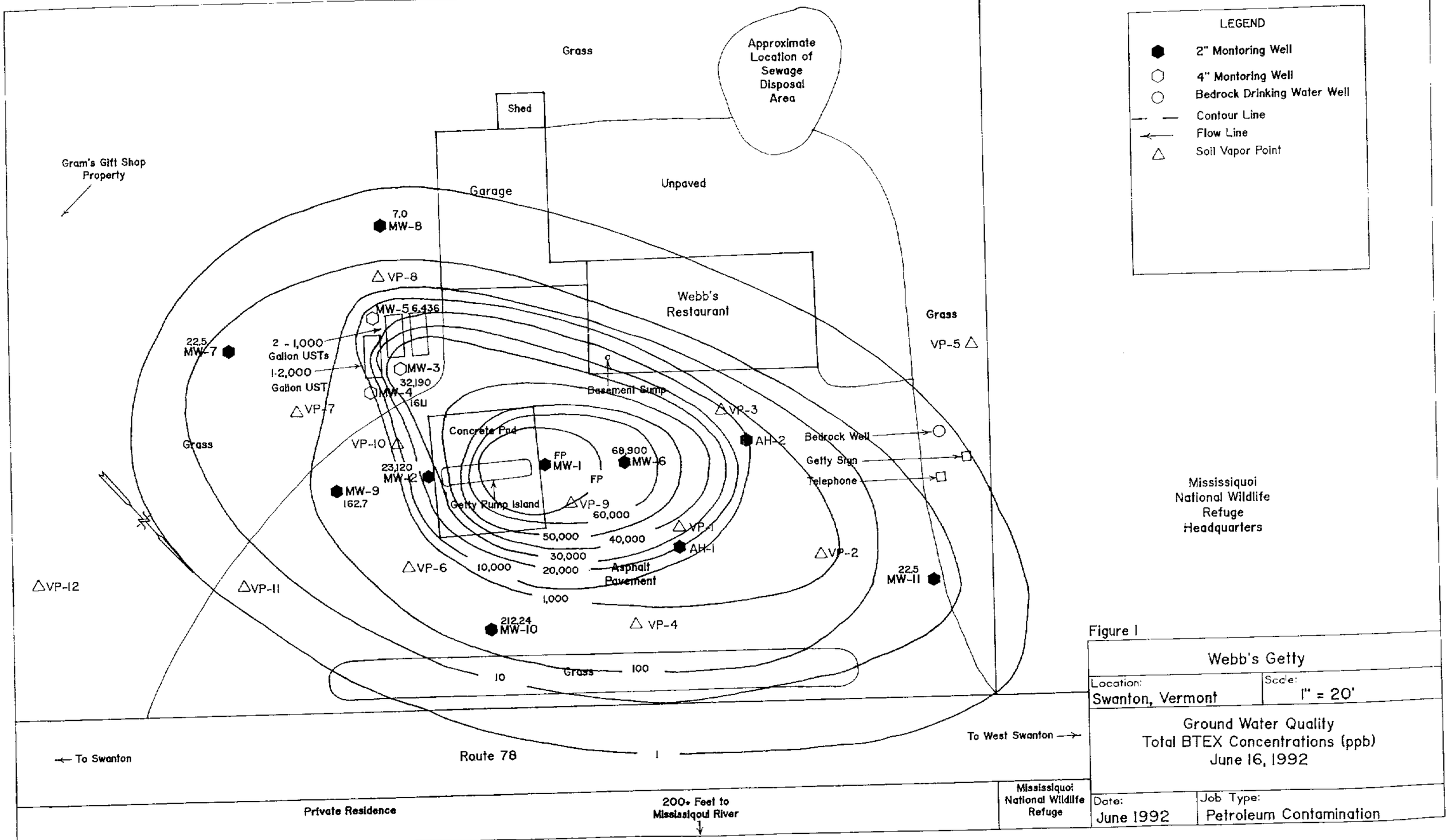


Figure 1

Webb's Getty

Location: Swanton, Vermont

Scale: 1" = 20'

Ground Water Quality
Total BTEX Concentrations (ppb)
June 16, 1992

Date: June 1992

Job Type: Petroleum Contamination

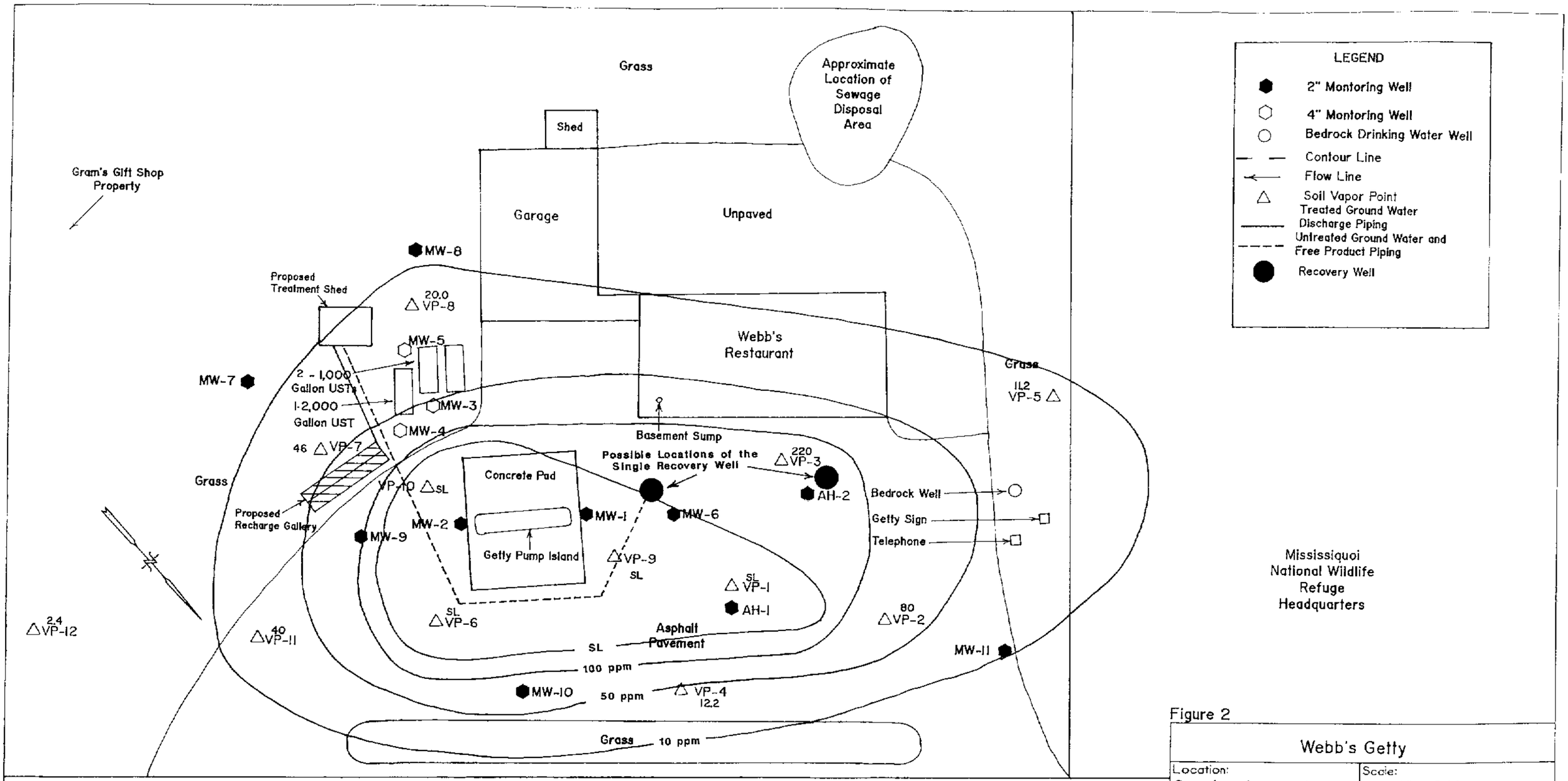


Figure 2

Webb's Getty

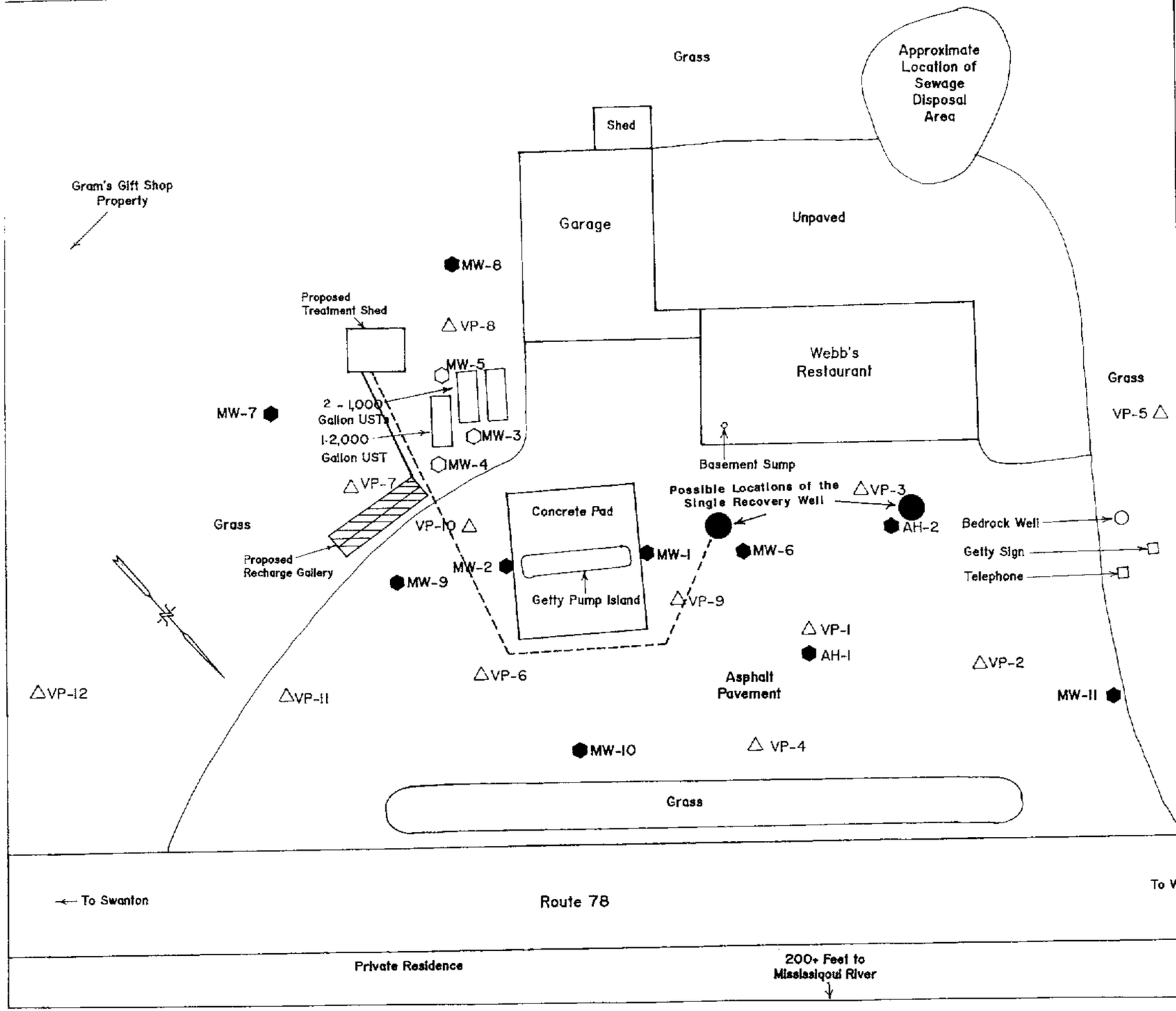
Location: Swanton, Vermont

Scale: 1" = 20'

Soil Vapor
Gasoline Concentrations (ppm)
June 30, 1992

Date: June 1992

Job Type: Petroleum Contamination



LEGEND

- 2" Monitoring Well
- 4" Monitoring Well
- Bedrock Drinking Water Well
- Contour Line
- Flow Line
- Soil Vapor Point
- Treated Ground Water Discharge Piping
- Untreated Ground Water and Free Product Piping
- Recovery Well

Figure 3

Webb's Getty

Location: Swanton, Vermont

Scale: 1" = 20'

Proposed Ground Water and Free Product Remediation System

Date: June 1992

Job Type: Petroleum Contamination